

REMARKS

I. 35 U.S.C. § 102(b)

In the Office Action, the Examiner has rejected Claims 1, 4-5, 9, 11, 21, 24 and 25 as allegedly being anticipated by Fujisawa et al., U.S. Patent 5,801,439. Applicant respectfully disagree.

The Examiner contends that Fujisawa discloses a flexible substrate means 24 on Page 3, paragraph 10 of the Office Action. However, on Page 2, paragraph 6, the Examiner states that element 24 is a lead which is bent around the packaged chip. Electrical leads by definition are a conductor leading from a terminal or electrode used for connecting one electrical circuit to another. In contrast, a substrate is a wafer or board on which an integrated circuit or printed circuit is formed or deposited. Leads and substrates are two different elements which perform two different functions. However, in order to further differentiate the claimed invention, Applicant has amended Claim 1 so that the stacking structure uses a flexible tape substrate. A flexible tape substrate is neither disclosed nor anticipated by Fujisawa et al.

To further differentiate Applicant's claimed invention from the prior art, Applicant's flexible tape substrate is folded on two or more sides to form flap portions. Claim 21 specifically states that the flexible tape substrate is folded on four sides to form flap portions. Having multiple flap portions of the flexible tape substrate increase contact density of the stacking structure. In contrast, Fujisawa has a lead 24 which is coupled to the bottom of

the semiconductor and then is bent around the semiconductor on one side. Fujisawa never discloses or anticipates a flexible tape substrate that is folded on two or more sides to form flap portions

Thus, Applicant respectfully submits the amended Claims effectively traverses the Examiner's rejections under 35 U.S.C. §102(b) as allegedly being anticipated by Fujisawa et al. Such action is earnestly solicited.

II. 35 U.S.C. § 102(e)

In the Office Action, the Examiner has rejected Claims 1-2, 4-5, 8, 11-12, 21-22, 24-25 and 28 under 35 U.S.C. 35 U.S.C. § 102(e) as allegedly being anticipated by Chung, U.S. Patent 6,376,769. Applicant respectfully disagrees.

Applicant's claim a flexible tape substrate that has metal layers. There are metal layers on the top surface to couple the flexible tape substrate to a first semiconductor device. There are also metal layers on a bottom surface to couple a second semiconductor device to the flexible tape substrate after the flexible tape substrate is folded over and coupled to the top surface of the first semiconductor device. In contrast, Chung uses a flexible interposer. The flexible interposer is used to provide spacing between the stacked semiconductor packages. The flexible interposer only has a metal layer on a top surface and not on multiple surfaces as claimed by Applicant.

In order to stack and connect semiconductor devices to one another, Chung requires a plurality of conductive vias. The solder

balls will melt during the reflow process thereby coupling one semiconductor device to another via the conductive vias. Chung fails to disclose or anticipate the use of a flexible substrate having metal layers for stacking and coupling two or more semiconductor devices as now claimed. Thus, Applicant respectfully submits the amended Claims effectively traverses the Examiner's rejections under 35 U.S.C. §102(e) as allegedly being anticipated by Chung. Such action is earnestly solicited.

III. 35 U.S.C. § 103(a)

In the Office Action, the Examiner has rejected Claims 3, 7, 23 and 27 under 35 U.S.C. 35 U.S.C. § 103(a) as allegedly being anticipated by Chung, U.S. Patent 6,376,769. The Examiner has also rejected Claims 6 and 26 under 35 U.S.C. 35 U.S.C. § 103(a) as allegedly being anticipated by Chung, U.S. Patent 6,376,769 in view of Iwase, U.S. Patent 6,172,418, or Hashimoto et al., U.S. Patent 6,486,544, or Kim et al., U.S. Patent 6,225,688, or Nicewarner, Jr. et al., U.S. Patent 5,776,797. Applicants respectfully disagree.

As stated above, Chung differs from Applicant's claimed invention since Chung uses a flexible interposer. The flexible interposer is used to provide spacing between the stacked semiconductor packages. In order to stack and connect semiconductor devices to one another, Chung requires a plurality of conductive vias. The solder balls will melt during the reflow process thereby coupling one semiconductor device to another via the conductive vias. Chung fails to disclose or anticipate the

use of a flexible substrate having metal layers for stacking and coupling two or more semiconductor devices. Thus, Applicant respectfully submits the amended Claims effectively traverses the Examiner's rejections under 35 U.S.C. §103(a). Such action is earnestly solicited.

III. Conclusion

Applicant respectfully submit that Applicant's claimed invention is deserving of patent protection because it describes a useful and functioning apparatus which is patentably distinguishable over the prior art.

In conclusion, Applicant respectfully submit that this Amendment Letter, including the amendments to the Claims, and in view of the Remarks offered in conjunction therewith, are fully responsive to all aspects of the objections and rejections tendered by the Examiner in the Office Action. Applicant respectfully submits that he has persuasively demonstrated that the above-identified Patent Application, including Claims 1-12 and 21-28 are in condition for allowance. Such action is earnestly solicited.

If the foregoing does not place the case in condition for immediate allowance, the Examiner is respectfully requested to contact the undersigned for purposes of a telephone interview.

If there are any fees incurred by this Amendment Letter,
please deduct them from our Deposit Account NO. 23-0830.

Respectfully submitted,


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